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“Future Observational Prospects at Thermal-IR Wavelengths and The
AGN Torus”

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A thermal-infrared imager and spectrometer is being investigated for possible construction in the early operation of the Thirty Meter Telescope (TMT). Combined with the mid-infrared adaptive optics (AO) system (MIRAO), the instrument will afford ~ 15 times higher sensitivity and ~ 4 times better spatial resolution ($0.07''$) with a greatly improved and stable Strehl ratio at $10\ \mu\text{m}$ compared to the images delivered by 8m-class telescopes. Through exploiting the large collecting area of the TMT, a high-dispersion spectroscopy mode unrivaled by other ground- and space-based facilities is planned. Such capabilities offer the possibility for breakthrough science, as well as 'workhorse' observing modes of imaging and low/moderate spectral resolution. In this presentation I detail the approach we followed to initially define the instrument and some of the science cases enabled, with a particular focus on the AGN torus.